STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No. MO-0029742

Owner: USA, Maneuver Support Center & Fort Leonard Wood Address: 1334 First Street, Fort Leonard Wood, MO 65473

Continuing Authority: Same as above Address: Same as above

Facility Name: USA, Fort Leonard Wood Wastewater Treatment Plant Facility Address: 185 Sewer Plant Road, Fort Leonard Wood, MO 65473

Legal Description: NE ¼, SW ¼, Sec. 2, T35N, R11W, Pulaski County

Receiving Stream: Dry Fork (U)

First Classified Stream and ID: Big Piney River (P)(01566)

USGS Basin & Sub-watershed No.: (10290202-040003)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

November 16, 2001 October 4, 2002

Effective Date Revised

Stephen M. Manfoott, Director Department of Natural Resources Executive Secretary, Clean Water Commission

November 15, 2006

Expiration Date MO 780-0041 (10-93) Jim Hull, Director of Staff, Clean Water Commission

FACILITY DESCRIPTION (continued)

Outfall #001 - Military Base - SIC #9711/4952

Trickling filter/anthracite filter/chlorination/anaerobic digester/sludge is land applied.

Design population equivalent is 50,000.

Design flow is 5.0 MGD.

Actual flow is 2.1 MGD.

Design sludge production is 1,400 dry tons/year.

Actual sludge production is 588 dry tons/year.

Outfall #002 - Military Base - SIC #9711/4952

Stormwater runoff from southeast area of wastewater treatment plant.

Design flow is 179,000 gallons per day.

Actual flow is dependent upon precipitation.

Outfall #003

Eliminated by connection to Outfall #005.

Outfall #004 - Military Base - SIC #9711/4952

Inflow/infiltration basin.

Design flow is 5 MGD.

Outfall #005 - Military Base - SIC #9711/4952

Stormwater runoff from northeast area of wastewater treatment plant.

Design flow is 179,000 gallons per day.

Actual flow is dependent upon precipitation.

Outfall #006 - Military Base - SIC #9711/4952

Stormwater runoff from northwest area of wastewater treatment plant.

Design flow is 179,000 gallons per day.

Actual flow is dependent upon precipitation.

Outfall #007

Eliminated by connection to Outfall #005.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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PERMIT NUMBER MO-0029742

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until June 30, 2003. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

		INTERIM EFFLUENT			MONITORING REQUIREMENTS	
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 Flow	MGD	*		*	once/week	24 hr. total
Biochemical Oxygen Demand ₅ ***	mg/L		15	10	once/week	24 hr. composite
Total Suspended Solids***	mg/L		20	15	once/week	24 hr. composite
pH - Units	SU	***		***	once/week	grab
Ammonia, Total	mg/L	*		*	once/week	24 hr. composite
Fecal Coliform	#/100mL	1000		400	once/week	grab
Total Residual Chlorine (Note 2)	mg/L	*		*	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE November 28, 2002.						
Whole Effluent Toxicity (WET) Test	See Special Condition #8			once/year in September composite	24 hr.	

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2003. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

MO 780-0010 (8/91)

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PERMIT NUMBER MO-0029742

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective July 1, 2003 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

	·	FINAL EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS			
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	DAILY MAXIMU M	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE	
Outfall #001 Flow	MGD	*		*	once/week	24 hr. total	
Biochemical Oxygen Demand ₅ ***	mg/L		15	10	once/week	24 hr. composite	
Total Suspended Solids***	mg/L		20	15	once/week	24 hr. composite	
pH - Units	SU	****		****	once/week	grab	
Ammonia, Total	mg/L	14		14	once/week	24 hr. composite	
Fecal Coliform	#/100mL	1000		400	once/week	grab	
Total Residual Chlorine (Note 2)	mg/L	0.019		0.019	once/week	grab	
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE November 28, 2002.							
Whole Effluent Toxicity (WET) Test	See Special Condition #8			once/year in September	24 hr. composite		
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2003.							
Outfalls #002, #005 & #006 Flow	MGD	*		*	once/quarter**	24 hr. estimate	
Biochemical Oxygen Demand ₅	mg/L	45			once/quarter**	grab	
Settleable Solids	mL/L/hr	1.5		1.0	once/quarter**	grab	
pH - Units	SU			grab			
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE January 28, 2003.							
Outfall #004 Flow	MGD	*			once/discharge	oue e le	
Biochemical Oxygen Demand ₅	mg/L	45			once/discharge	grab grab	
Total Suspended Solids	mg/L	45				grab	
pH - Units	SU	***			once/discharge	grab	
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE November 28, 2002.							
In Stream Monitoring (Note 1)							
Flow	cfs	*			once/month	grab	
Dissolved Oxygen	mg/L	*			once/month	grab	
Total Ammonia	mg/L	*			once/month	grab	
Total Residual Chlorine	mg/L	*		*	once/month	grab	
Temperature	°C	*			once/month	grab	
pH - Units MONITORING REPORTS SHALL RE SUBMI	SU	*			once/month	grab	

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE November 28, 2002. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * Monitoring requirement only.
- ** Sample once per quarter in the months of January, April, July & October.
- *** This facility is required to meet a removal efficiency of 65% or more.
- **** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

Note 1 - Permittee shall monitor the Big Piney River upstream and approximately ¼ mile downstream of confluence of Dry Fork and Big Piney River. Flow data for the Big Piney may be obtained from the nearest United States Geological Survey (USGS) gauge station. Permittee shall submit a topographic map showing in stream sampling locations and latitude/longitude of sampling locations.

Note 2 - This permit contains a Total Residual Chlorine (TRC) limit.

a. If the TRC limit in this permit is 0.01 mg/L or 0.2 mg/L, you <u>must use</u> an analytical method that has a quantification limit of no greater than 0.05 mg/L TRC. For reporting purposes on the discharge monitoring report (DMR), all analytical values below 0.05 mg/L shall be reported as "<quantlim." All analytical values at or above the quantification limit of 0.05 mg/L shall be reported as the measured value. The permittee shall report the quantification limit in the remarks section of the DMR.

The average monthly effluent values for TRC will be determined by assuming that analytical results below the quantification limit are equivalent to 0 mg/L when calculating the monthly average.

The daily effluent value will be considered equal to 0 mg/L if it is below the quantification limit.

b. If the TRC limit in this permit is 1.0 mg/L; you <u>must use</u> an analytical method with a quantification limit between 0.2 and 0.5 mg/L. All analytical values below the quantification limit shall be reported as "<quantlim." All analytical values at or above the quantification limit shall be reported as the measured value.

The average monthly effluent values for TRC will be determined by assuming that analytical results below the quantification limit are equivalent to 0 mg/L when calculating the monthly average.

The daily effluent value will be considered equal to 0 mg/L if it is below the quantification limit.

- c. Disinfection is required year-round unless the permit specifically states that "Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31." If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.
- d. Do not chemically dechlorinate if it is not required in your permit.
- e. If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L" TRC.

C. SPECIAL CONDITIONS

- 1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
 - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

- 2. All outfalls must be clearly marked in the field.
- 3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.
- 4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
 - (1) One hundred micrograms per liter (100 $\mu g/L$);
 - (2) Two hundred micrograms per liter (200 $\mu g/L$) for acrolein and acrylonitrile; five hundred micrograms per liter (500 $\mu g/L$) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established in Part A of the permit by the Director.
- (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
- 5. Report as no-discharge when a discharge does not occur during the report period.

C. SPECIAL CONDITIONS (continued)

- 6. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (e) There shall be no significant human health hazard from incidental contact with the water;
 - (f) There shall be no acute toxicity to livestock or wildlife watering;
 - (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
- 7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
 - (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
 - (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids that are removed from the domestic wastewater treatment lagoon during lagoon clean-out and maintenance activities. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids from the lagoon. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.
- 8. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT							
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH			
#001	65%	Annually	24 hr. composite	September			

- a. Test Schedule and Follow-Up Requirements
 - (1) Perform a single-dilution test in the months and at the frequency specified above

If the effluent passes the test, do not repeat the test until the next test period. Submit results with the annual report.

If the effluent fails the test, a multiple dilution test shall be performed within 30 days, and biweekly thereafter, until one of the following conditions are met:

- (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
- (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

C. SPECIAL CONDITIONS (continued)

- 8. Whole Effluent Toxicity (WET) (continued)
 - a. Test Schedule and Follow-Up Requirements (continued)
 - (2) The permittee shall submit a summary of all test results for the test series to the WPCP, Planning Section, P.O. Box 176, Jefferson City, MO 65102 within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
 - (3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
 - (4) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
 - (5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 days of the availability of the results.
 - (6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.
 - b. PASS/FAIL procedure and effluent limitations
 - (1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control sample. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.
 - (2) To pass a multiple-dilution test:
 - (a) the computed percent effluent at the edge of the zone of initial dilution, Acceptable Effluent Concentration (AEC), must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; or,
 - (b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is an effluent limit violation.

C. SPECIAL CONDITIONS (continued)

- 8. Whole Effluent Toxicity (WET) (continued)
 - c. Test Conditions
 - (1) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.
 - (2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
 - (3) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
 - (4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after sample collection.
 - (5) Single-dilution tests will be run with:
 - (a) Effluent at the AEC concentration;
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) reconstituted water.
 - (6) Multiple-dilution tests will be run with:
 - (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) reconstituted water.
 - (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

D. SCHEDULE OF COMPLIANCE

- 1. By December 31, 2002, permittee shall submit a complete application for a construction permit as defined by 10 CSR 20-6.010(2) & (4) in order to comply with the final effluent limitations (ammonia and total residual chlorine), if necessary.
- 2. By July 1, 2003, permittee shall complete approved upgrades to the facility and meet final effluent limitations.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

Test conditions for Ceriodaphnia dubia:

Test duration: 48 h Temperature: 25 \pm 2°C

Light Quality: Ambient laboratory illumination

Photoperiod: 16 h light, 8 h dark Size of test vessel: 30 mL (minimum)

Volume of test solution: 15 mL (minimum)

Age of test organisms: <24 h old

No. of animals/test vessel: 5
No. of replicates/concentration: 4

No. of organisms/concentration: 20 (minimum)

Feeding regime: None (feed prior to test)

Aeration: None

Dilution water: Upstream receiving water; if no upstream

flow, synthetic water modified to reflect

effluent hardness.

Endpoint: Mortality (Statistically significant

difference from upstream receiving water

control at p# 0.05)

Test acceptability criterion: 90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration: 48 h Temperature: 25 \pm 2°C

Light Quality: Ambient laboratory illumination

Photoperiod: 16 h light/ 8 h dark
Size of test vessel: 250 mL (minimum)
Volume of test solution: 200 mL (minimum)

Age of test organisms: 1-14 days (all same age)

No. of animals/test vessel: 10

No. of replicates/concentration: 4 (minimum) single dilution method

No. of organisms/concentration: 2 (minimum) multiple dilution method 40 (minimum) single dilution method 20 (minimum) multiple dilution method

Feeding regime: None (feed prior to test)

Aeration: None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.

Dilution water: Upstream receiving water; if no upstream

flow, synthetic water modified to reflect

effluent hardness.

Endpoint: Mortality (Statistically significant

difference from upstream receiving water

control at p# 0.05)

Test Acceptability criterion: 90% or greater survival in controls

Date of Fact Sheet: August 3, 2001

Date of Public Notice: August 3, 2001 July 19, 2002

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FACT SHEET

This Fact Sheet explains the applicable regulations, rationale for development of this permit and the public participation process.

NPDES PERMIT NUMBER: MO-0029742

FACILITY NAME: USA, Fort Leonard Wood Wastewater Treatment Plant

OWNER NAME: USA, Maneuver Support Center & Fort Leonard Wood

LOCATION: Sec. 2, T35N, R11W, Pulaski County

RECEIVING STREAM: Dry Fork

FACILITY CONTACT PERSON: Scott Murrell TELEPHONE: (573) 596-0882

FACILITY DESCRIPTION AND RATIONALE

The USA, Maneuver Support Center & Fort Leonard Wood has applied for renewal of Missouri State Operating permit (MSOP) number MO-0029742 for the Fort Leonard Wood Wastewater Treatment Plant. The proposed permit renewal is for the discharge of treated sanitary wastewater utilizing a trickling filter, sand filter, chlorination, and storm water runoff.

Discharges for the beneficial uses of livestock/wildlife watering, aquatic life protection, irrigation, drinking water supply, whole body contact recreation, boating, and cool water fishery.

Rationale for effluent limits are as follows:

The facility is subject to effluent regulation 10 CSR 20-7.015(4) for biochemical oxygen demand, total suspended solids, fecal coliform, pH, and total residual chlorine. Monitoring for Whole Effluent Toxicity and total ammonia are included to further protect aquatic life.

Because of little or no dilution in Dry Fork, the proposed final limit for total residual chlorine and total ammonia are derived from 10 CSR 20-7.031. Tables A and B.

Because of the additions of total residual chlorine and total ammonia limits in the permit, a schedule of compliance has been added to allow the permittee time to upgrade the facility to comply with the final limits.

In stream monitoring is being added to the permit to obtain additional water quality data.

The permit writer also used "Best Professional Judgement" to consider pollutants believed present and established limits based on good housekeeping and/or physical treatment of wastewater. Monitoring is being required on other parameters known or suspected to be present in order to obtain additional information to determine if there is need to limit those pollutants in any reissued permits. Best Management Practices are also required to complete the limitations and monitoring in order to insure that pollutant sources are isolated from water as is feasible.

This permit will be issued for a period of <u>five</u> years.